



EDITORIAL

How susceptible are native plants to insect attack?

As every possum knows, native trees in New Zealand can offer a particularly good meal. But when it comes to insects, native plants seem to be less attractive. Scion scientist, Nod Kay has spent the last decade studying why New Zealand flora is relatively immune to insect pests.

In the world of ecological theory it is generally accepted that the smaller the ecosystem, the more prone it is to disturbance. According to the textbooks, this means that island plants are theoretically more susceptible to insect attack than plants on continents. In his studies of forest entomology, Nod Kay noticed that the opposite appears to be true. After years of feeding different kinds of foliage to insects, he sees that island plants, including New Zealand flora, are less palatable than their continental counterparts.

He believes that plants have to work much harder to protect themselves when there are less species in the food chain above them. In large continental ecosystems, the range and complexity of species means that herbivorous insect populations are more likely to be kept in check by other insects or animals. The lack of complexity in simple island systems has forced island plants to evolve internal systems that provide them with natural self-defence. Nod's research shows that, as a basic defence, New Zealand plants appear to accumulate less nitrogen than normal, making them less nutritious to insects.

Nod's novel theory suggests that island vegetation needs high in-built resistance because insects can easily blow in on a tropical storm and there are fewer predators in the food chain to check their spread. This hypothesis, which flies in the face of scientific convention, has huge implications for how ecosystems are viewed. For this reason, Nod's research makes an important contribution to understanding the role of biodiversity in ecosystem stability, which is one of the great ecological debates of our time.

Other Scion studies looking at the effects of biodiversity on forest health confirm that forest diversity generally reduces pest damage and increases the stability of forest ecosystems. The presence of a diverse range of native shrubs and other species in the under storey of plantation forests may actually reduce populations of insect pests.

On a practical level, this knowledge can reassure growers in New Zealand that their stands of native trees are likely to be healthier and less prone to insect attack than exotic species.

— Margaret Richardson, Scion

PROJECTS



Ministry of Agriculture and Forestry
Te Manatu Ahuwhenua, Ngāherehere

The Continuous Cover handbook is complete and your copy is enclosed. Feedback will be welcomed.



An example of a multi tiered continuous cover forestry on the cover of the new manual

The archives database project is also complete and all that has to be done now is to have it placed on our website www.tanestrees.org.nz. This is proving a little more difficult than we thought and we are grateful for assistance from Scion in getting the job done. When it is available it will be searchable and here too feedback will be welcome. It is intended that the database will be periodically updated and new projects added.

The project to produce a bulletin on beech management has been begun and it is expected that contacts will soon be made with people interested in growing and managing beech. If you are one of these and have not been contacted please get in touch with Mark Smale SmaleM@landcareresearch.co.nz, Bruce Burns burnsb@landcareresearch.co.nz or David Bergin David.Bergin@scionresearch.com.

We are now well advanced on the production of a new handbook on the practical aspects of establishing new indigenous forests, whether for production or conservation. When complete this hand book will be the basis of future Trust workshops and a proposed course on the topic. For this we have funding from the Sustainable Farming Fund plus a generous contribution from FITEC, the forest industry training organization. It is hoped that the handbook will be available by the end of the year. Read more about this in the section on Test Workshops.

Funding:

We have recently added up all of the funding for project work which the Trust has received since 2002 and were amazed to find that this totalled \$556,281-00. The bulk of this (\$375,200) has come from the Sustainable Farming Fund and FITEC (\$71,874). Other generous sponsors have been the Forest Owners Assn, ASB Trust, Waikato, Bay of Plenty and Northland Regional Councils, Lottery Grants Board, Local Government Assn, Transpower via NZ Landcare Trust, Robert C Bruce Trust and the Ron Greenwood Environmental Trust.

Trustees:

Trustees retire by rote each November but are eligible for reappointment. Those who stand down next November are Peter Berg, Warwick Silvester, Mark Dean, Murray McAlonan and Rob Storey. We are calling for nominations for 5 Trustees to be appointed in November 2008. The 5 standing down by rote are all offering for re-election. A nomination form is attached to the A.G.M notice included with this newsletter and any network member is able to nominate any person to be considered for Trusteeship. If there are more nominations than places, a committee consisting of the Trust Chairman, one other Trustee and 2 Trust network members to be elected by the AGM, will consider the nominations and make a recommendation to the trust as to who should be appointed.

Donations:

During the 2007/8 year donations were received from the following network members: -

S. Anderson	C. Barnard	J. Spiers
M. Andrews	B. McClure	A. Williams & J Parfitt
H. Gordon	S. Gray	L. Burdett
D. McIntosh	N. & B. J A Bryant	P. McKelvey
E. Macky	B. Valling	Specimen
Tree Company	A. McPherson	A. E. Beveridge
P. Berg	A. Levett	J. & B. Mortimer
J. Purey-Cust	T. & S. Wilding	P. Carr
D. White	A. Luddington	Greenmantle Tree Farm
P. & D. Lyders	J. Smith	P. Shepherd
J. Manning	R. & M. Haliburton	J. Tregidga
G. Devey	H. Luschberger	A. M. & Y. R. Robinson
M. von Tippelskirch	I. Brennan	S. Dower
L. Carr & C. Ward	B. & P. Hervey	D. Nicholls
F. Olsen	D. Blackwell	B. Albiston
K. Douglas	G. Hill	N. Roderick

Tāne's Tree Trust Research Fund

The Trust has recently been debating the proposal to set up a special account which will be used to fund research and the dissemination of research results. At our last meeting the Management Committee resolved to begin the fund with a sum of \$12,500, roughly equivalent to money donated by Trust network members over the past five years, and from now on to put all donations, bequests etc into that fund. We will set a limit below which the fund will not be allowed to fall and will attempt to build it up to a reasonable level before disbursing funds for research. The final decision will be made at the next full Trust meeting in June. In the meantime we would encourage network members to consider making a donation when you pay your subscription.

A. G. M. Monday July 28 2008

This year's A.G.M. will be held at the rooms of the Royal Society of New Zealand in Wellington and will be followed by a workshop designed to test our new Indigenous Establishment Handbook (see Trust Activities section) An agenda is included with this newsletter.

Workshops

Taupo: Growing cheaper seedlings

There will be a workshop at the Taupo Native Plant Nursery on 7 June 2008, starting at 10.30am. There is no charge for the workshop. The nursery is located at 155 Centennial Drive, Taupo.

This is the first formal field day of the three-year Sustainable Farming Fund project based in Northland and which is working on the problem of producing cheap, bare-rooted native tree seedlings. Initially set up near Warkworth, the project was moved from Omaha to Taupo last year to take advantage of existing equipment and expertise at Taupo.

An outline of the programme is below: -

- 10.00 am** Morning tea in Packing Shed as signposted.
- 10.30 am** Facilitate morning technical session (David Bergin, Scion)
- 10.35 am** Welcome to Taupo Native Plant Nursery (Philip Smith, Manager)
- 10.45 am** Background and objectives of the project (Peter Cimino Cole, Project Manager)
- 11.15 am** Tane's Tree Trust role - promoting and supporting planting and managing natives for multiple objectives (Ian Barton, Chairman)
- 11.30 am** Open-ground v-v container-grown native seedlings (demonstration by Jaap van Dorsser; current nursery project Philip Smith)
- 12.00 am** Update on carbon issues and planted indigenous forest (MAF representative)
- 12.30 am** Free Lunch - sausage sizzle, buns, biscuits, hot drinks, etc
- 1.00pm** View open beds and potted seedlings combined with nursery tour (Philip Smith & Graeme Robinson, Taupo Native Plant Nursery)
- 2.00 pm** Finish

All food and drink will be provided. A 12-seater bus is going to Taupo from the Mahurangi, probably returning on Sunday, via Ngongotaha and Jap van Dorsser's. Any Tane's Tree Trust members who would like to travel by bus can ring Peter Cole (09 422 0872) to see if any seats are still available and to sort out pickup details etc.

Test workshops for new Handbook

We are currently working hard, with funding from SFF and FITEC, to produce a handbook for Trust workshops and ultimately to be used as the basis of a FITEC course on indigenous forestry. Two workshops are proposed to test the first draft of the handbook so we can get feedback, from those interested, on its effectiveness. One will be held in association with the Lower North Farm

Forestry Assn at Kaukapakapa and the other with the Institute of Forestry in Wellington.

The workshop at Kaukapakapa will be in the local Hall on Saturday 28th June commencing at 10 am. (Refreshments from 9.30) The Hall is located on the road from Orewa just before the junction with SH 16.

The Wellington workshop will be held in the Royal Society of New Zealand rooms, commencing at 10 am on Monday 28th July, and will follow the Tāne's Tree Trust A.G.M which will start at 8.45 am. The Royal Society rooms are at 4 Halswell Street Thorndon; for further details on location check their website at www.rsnz.org/directory/location/.

The programme for the workshops is intended to test the new handbook which the Trust is preparing for future workshops and a proposed course on the growing of native trees. For this we would appreciate the attendance of as many Trust members as possible, which will hopefully include those who have a good knowledge about growing native trees as well as those eager to learn.

Programmes for the two workshops are still under preparation so, for further information and to register your attendance, please e.mail Ian Barton at ibtrees@wc.net.nz after the 5th of June.

Indigenous Forest Section of Farm Forestry

Quite a few members of Tāne's Tree Trust are also members of Farm Forestry and the I.F.S and so will be aware of that section's activities. I am one such and this year attended the A.G.M of the I.F.S while at the Farm Forestry Conference in Christchurch. Following is a brief report of that meeting.

The current Chairman is Phillip Smith who is the Manager of the Taupo Native Plant Nursery. He was re-elected as Chairman at the AGM as was the rest of the committee with the addition of Neil Cullen. John Wardle continues as Editor of the section's excellent journal, "Indigena". The membership of I.F.S has increased and is now 240 members and, although they would like more people to join the Farm Forestry Association, it is now possible to receive Indigena without joining. The cost of this is \$8 per issue (including postage) and there are four issues each year. Indigena is well worth getting and contains many wide ranging articles and I would encourage members of Tāne's Tree Trust who are interested, to subscribe. You can do this by writing to John Wardle at P O Box 40, Oxford, North Canterbury (phone 03 312 4171) with your cheque for \$32 payable to the Indigenous Forestry Section NZFFA

Newsletter Subscription Renewal

Subscription notices for the 2008/09 year are sent to you this newsletter. Dealing with and chasing up subscriptions takes a lot of time that could be better employed on project work so the Trust would be grateful if you could renew your subscription early and, if you do not wish to continue with membership, please let us know. Those members who have paid in advance or who joined after 1 January 2008, have paid for the 2008/09 year and you will not receive an account.

Afforestation Grant Scheme

The Government has been working on this for some time and the Trust made an extensive submission on the proposal. In particular we emphasised that the fund should be divided up so that part of it was available for indigenous planting. On April 22nd the Government made the announcement below. Trust members who are interested in taking part in the scheme should contact MAF as indicated below.

Grant Scheme For More Small Forests

Press Release by New Zealand Government at 1:53 pm, 22 Apr 2008

More forestry planting is the aim of a new scheme launched by forestry minister Jim Anderton today. The Afforestation Grant Scheme is designed to encourage more planting of trees in small forests and on farms. Increasing the area of new forest that complies with Kyoto protocol rules will lead to more climate changing greenhouse gases being absorbed. The government announced the scheme last year in a package of initiatives to reduce the impact of climate change. It offers an alternative to the proposed New Zealand Emissions Trading Scheme.

The Minister, Jim Anderton, advises that the first round of public tenders is now open and he hopes that farmers and small forest owners will be attracted by the low compliance costs of the scheme.

Growers can receive a government grant for planting new forests on land that was unforested at 31 December 1989. Those who receive grants under the scheme will own the new forests and earn income from the timber when harvested. The government will retain the Kyoto Protocol carbon sink credits and take responsibility for meeting harvesting and deforestation liabilities.

Half the funding in the Afforestation Grant Scheme will be available to Regional Councils to help meet their sustainable land management objectives. Further details of this component of the scheme will be announced shortly. The other half will be available directly to the general public through a public tender pool. Seventy per cent of the public tender pool will go to species that have high carbon sequestration rates. These will be usual exotic plantation species such as Pinus radiata and Douglas fir. The remaining thirty per cent will be reserved for species with low carbon sequestration rates. [Note this includes indigenous species]

The government expects most of the 2008 tenders will be for 2009 planting. The 2008 closing date will be 30 June. The Ministry of Agriculture and Forestry (MAF), which administers the Afforestation Grant Scheme, has produced a guidelines booklet to explain the scheme and assist applicants.

Copies of the Afforestation Grant Scheme Guidelines and application form can be downloaded from the MAF website, www.maf.govt.nz/climatechange, by emailing climatechange@maf.govt.nz or by calling 0800 CLIMATE (254 628)

Timber Trees of the future

Kamahi — *Weinmannia racemosa*

Introduction

Usually, when I come to write about an indigenous tree with potential for timber production, there is no problem sourcing enough information from the various books and journals that I have. Kamahi however is different; sometimes quoted as the commonest tree in the New Zealand bush, it has surprisingly been little studied or written about. There is little information about its early uses or the attributes of its timber. Because of its ability to grow well on many sites it is perhaps a tree worthy of inclusion in future planting trials. One area which appears to be fairly well understood is its ecology, since it is an important component of many forest types. Of the 18 major North Island forest types recorded by McKelvey and Nicholls kamahi occurs in 16 and in about 50% of all the subtypes. By contrast rimu only appears in 10 major types although it is found in 50% of the sub types. The most prominent broadleaf, tawa, appears in 11 major types and 47% of the minor types

History

The Maori use kamahi as a chest tonic if kumarahou is not available. It is given to people suffering from the flu, bronchitis, heavy chest colds; the bark being boiled and the infusion drunk. This was also used to bathe wounds, burns, etc since it has antiseptic qualities, as well as accelerating healing. The tannic acid in the bark was used for dyeing; usually for dark black. The tannic acid from the bark reacts with the ferrous salts in the paru - the mud in certain swamps, etc., - to produce a strong and permanent black. With its high tannin content (10 – 13%) the bark was much used in early European times by tanners, who apparently almost wiped the species out in the Auckland region.

Distribution

The Genus *Weinmannia* is widely distributed throughout the Southern Hemisphere, mainly in South America, Madagascar and the SW Pacific. Most species are sub-tropical. In New Zealand kamahi is found south of latitude 37° (Te Aroha), while its northern cousin towai (*W. sylvocola*) grows from latitude 35° – 38° (Kaitaia to Whakatane). Kamahi grows up to 1000m. altitude in the North Island and 900m in the south and is generally confined to areas with rainfall greater than 1000mm.

Tree size and growth

It is recorded in *The Flora of New Zealand*, Vol. 1 as growing to 25 metres tall and 1.2 metres in diameter, often with multiple trunks; towai is smaller. Kamahi often begins life as an epiphyte, growing on the trunks of wheki. It establishes early in regenerating scrubland and plays an important role in forest succession. Planted trees are recorded as having grown to 8.8 metres after 20 years (mai ca. 40 cm) and to 10 cm diameter over the same time (mai ca. 5 mm)



Kamahi - immature fruit

Timber

The timber is a hardwood without distinct growth rings and is noticeably heavy and close textured. It has been recorded as having been exported to the United Kingdom some 80 years ago where it is described as a wood of deep red colour, hard and strong with an ornamental grain. It was available in medium lengths up to 25 cm wide and used for cabinet making and ornamental work. Its density is between 600 and 720 kg / m³ and its specific gravity 0.72 (which is very high) but no other details are available. Clifton records it as having low durability (< 5 years) but this figure may relate to sappy roundwood. Mortimer states that the wood is durable under damp conditions only. The timber is apparently attacked by pinhole borer but according to Mortimer it is treatable and has been used for fence posts, sleepers, house blocks and wharf piles.



Kamahi -flowers

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Potential for Continuous Cover Forestry

It is quoted as being a suitable nurse species, although not as a primary nurse, requiring to be planted under a cover of *Coprosma*, *Coriaria*, *Olearia* or *Hebe* species. However once established it has the potential to nurse more important timber trees like rimu and is able to form a canopy or grow in shade as a sub-dominant. One of kamahi's greatest attributes is its apparent ability to grow on a very wide range of sites, throughout most of New Zealand. It is however prone to possum damage since it appears to be one of the most palatable species.

Potential

Kamahi has potential in several areas. There would seem to be a place for it as a minor species in both planted and natural indigenous forest since it appears very amenable to management. It is also recorded as an important honey producer.

Research Requirements

The very limited research into the potential of this species currently restricts its use on a wider scale. Some work should be done to determine the durability and other qualities of its timber since lack of knowledge here greatly restricts its use. Some planting trials are also needed over a range of sites and with a combination of other species.

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